

USSR

Hydrobiology

PERSHIN, S.V., SOKOLOV, A.S., and TOMILIN, A.G., Institute of Zoology, Academy of Science USSR, Higher Naval Engineering School imeni F.E. Dzerzhinskiy, Leningrad, and All Union Agricultural Institute of Correspondence Education, Moscow

"Elasticity of Dolphin Fins Controlled by Special Vascular Organs"

Moscow, Doklady Akademii Nauk SSSR, Vol 190, No 3, Jan 70, pp 709-712

Abstract: Four types of dolphins were studied. It was found that during swimming, propulsive waves pass continuously along the dolphin's body. The propulsion mechanism consists of a strongly deforming body and tail fin, as well as other fins, all representing complex hydrodynamic wings. A detailed microscopic and x-ray analysis of the tail fin is given. The vascular network is very interesting, in that all blood vessels consist of a thick-walled artery surrounded by 10-20 smaller thin-walled veins. Another interesting aspect of the vascular network in the tail fin is the fact that there is one general distribution center of the blood vessels, which to some extent controls the elasticity of the entire fin.

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TOMILIN, A. G.

UDC 599.537

"On Keeping Dolphins in Captivity and Their Behavior"

Moscow, Byulleten' Moskovskogo Obshchestva Ispytateley Prirody, Otdel Biologicheskii, Vol 76, No 3, May/Jun 71, pp 146-157

Abstract: Observations made in the USSR and abroad on the behavior of dolphins, porpoises, and other cetaceans during capture, in captivity, and during training are summarized (33 references). The behavior of the Black Sea dolphins *Tursiops truncatus* and *Delphinus delphis* and of porpoises (*Phocaena phocaena*) kept in the basin of the Karadag Biological Station was studied. A feeding habit formerly unknown in Odontoceti was discovered, that of sucking of prey (fish, etc) into the slightly opened mouth by a movement of the tongue. This habit was observed on dolphins and may be assumed to be shared by whales of the families *Physeteridae* and *Ziphiidae* because of the structure of their mouth. Knocking of two boulders against each other under water frightens dolphins and can be used as a means of driving them in the desired direction in the sea, for instance, into a net in order to capture them. Dolphins are easily trained because of their imitative instinct; they sometimes do not require any training, because they imitate the behavior of other

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TOMILIN, A. G., Byulleten' Moskovskogo Obshchestva Ispytateley Prirody,
Otdel Biologicheskii, Vol 76, No 3, May/Jun 71, pp 146-157

dolphins in the basin that have already been trained. When objecting to the actions of trainers and keepers, dolphins seldom bite them, although they often bite other dolphins; they hit humans by a movement of the tail or body or press them to the bottom of the basin. When dolphins suffer agonizing pain, they make strong, uncontrolled movements of the tail, which project them head first against the wall of the basin with the result that they are killed.

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MILIN, A. G.

COMMUNICATION-EMOTIONAL SIGNALS OF BLACK SEA DOLPHINS

[Article by A. A. Il'ev, A. G. Milin, N. S. Barchukov, L. I. Vukobratovich and V. M. Leontev, Sovetskoye Yazyko, Moscow, 1971, No 3, 1971, 134-vo "Naukova Dumka", pp 67-72]

JPRS 55982

15 May 72

During 1966-1968 specialists at the base of the "Sardar" investigated the communication-emotional signals of Southern Sea dolphins, five bottle-nosed porpoises and five harbor porpoises. The animals were kept singly and in groups in a basin (10 x 13 x 2 m) and in a non-seco made of kapron net (40 x 8 x 10 m). In registering the sounds of dolphins confined to a basin we used an instrument for measuring sonic pressure with a passband of 0.5-100 kc/sec and a magnetic recorder with a band-pass filter characteristic 1-100 kc/sec. The signals were analyzed using a SSM 1-24 spectrum analyzer and a R-102 oscilloscope. The rate of sound reproduction was slowed down by factors of 16 and 32.

The lack of a classification of acoustic signals of cetaceans creates great difficulties in determining the biological importance of these sounds. In 1967 the acoustic signals are classified as echolocation, communication and complex. But we receive only echolocation, communication and complex. But we it is common to detect sounds because in behavioral situations there is a considerable variety of all three groups (1, 2, 3) and signals, sounds of communication-emotional signals even within one group. A group of communication-emotional signals includes pure chirping, barking, moving, and also whistles mixed with pure clicks not having a location function. Under nonlocation conditions when the dolphin is at rest and its location apparatus is not operating, pulsed clicks can have a high and low repetition rate.

USSR

UDC 669.245:536.777:669.787

GOLOVAIENKO, S. A., TOMILIN, I. A., and KONNOVA, I. YU., Moscow

"Activity of Carbon in Nickel-Base Alloys"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 2, Mar-Apr 73, pp 72-75

Abstract: The activity of carbon in Ni-Cu alloys containing up to 30 wt% Cu was investigated in the 1000-1200°C temperature interval. The results are discussed by reference to diagrams showing the carbon distribution in ternary Ni-alloy-Ni samples, the effect of Cu on the activity coefficient of C in Ni, the solubility of C in Ni-Cu alloys, and the temperature dependences of the activity coefficient of C in systems Ni+1% at. wt. of Cr, V, W, Ti and Nb in the 800-1200°C temperature interval. Cu is shown to increase the activity of C in Ni; Nb and Ti decrease it; V, Cr, and W increase it. These effects are discussed in comparison with the tendency of alloying elements to the formation of carbides and intermetallides. Four figures, three tables, seven formulas, five bibliographic references.

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USSR

UDC 669.14'786:541.123.28

IVANOV, B. S., KONDRAT'YEV, A. I., TOMILIN, I. A., LEVIN, F. L., and
MEL'KUMOV, I. N., Moscow

"Causes of Formation of Gas Blowholes in Nitrogen-Containing Steel Ingots"

Moscow, Akademiya Nauk SSSR. Izvestiya. Metally, No 6, Nov-Dec 72,
pp 108-113

Abstract: A study was made of the effect of weight and ingot quenching conditions on the quality of the macrostructure, solubility of nitrogen in solid and molten steels near the point of crystallization, and structural state of the metal at high temperatures. The mass of the ingot and the quenching regime exerted a weak effect on the reduction in the development of gas porosity in nitrogen-containing steel ingots. The drastic reduction of the solubility of nitrogen during the crystallization of the metal, owing to the formation of the ferrite component, was the principal cause of the origin of gas blowholes in high-alloy nitrogen-containing steel ingots. The formation of gas blowholes is possible with a nitrogen content in the molten metal surpassing its solubility in the crystallizing austenitic component.

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UNCLASSIFIED
TITLE--KINETICS OF THE DECARBURIZATION OF TRANSFORMER STEEL IN MOISTENED
NITROGEN HYDROGEN MIXTURES -U-
AUTHOR--(04)--IDMILIN, I.A., BORISENKO, V.G., PETRENKO, A.G., SHVARTSMAN,
L.A.
COUNTRY OF INFO--USSR
SOURCE--ZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(2), 329-32
DATE PUBLISHED--70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--TRANSFORMER STEEL, NITROGEN, HYDROGEN, COLD ROLLING, SILICON
STEEL, METAL DECARBURIZATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1995/0178
CIRC ACCESSION NO--AP0115882
STEP NO--UR/0048/70/034/002/0329/0332
UNCLASSIFIED

2/2 021

CIRC ACCESSION NO--AP0115882

UNCLASSIFIED

PROCESSING DATE--09OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TESTS WERE MADE ON THE CHANGE OF C CONCN. AFTER TEMPERING THE SAMPLES OF COLD ROLLED STEEL DEPENDING ON THE TIME AND CHEM. COMPN. OF THE GAS. THE INITIAL C CONTENT IN STEEL WAS 0.045PERCENT. THE GAS STREAM FLOW RATE WAS SIMILAR TO 4 M PER MIN. THE C CONCN. WAS DETD. BY CHEM. METHODS. DURING EXPTS. A CONST. CONCN. OF H SUB2 (15PERCENT) WAS MAINTAINED, CHANGING, HOWEVER, THE RATIO RHO SUBH2-RHO SUBH2O FROM 10 TO 1.5. THE RATE OF DECARBURIZATION INCREASED WITH INCREASE OF MOISTURE CONTENT IN THE MIXT. THE REACTION RATE WAS RATHER LOW COMPARED TO THE RATE OF DIFFUSION. FACILITY: INST. METALLOVED. FIZ. METAL., MOSCOW, USSR.

UNCLASSIFIED

1/2 016
TITLE--SOLUBILITY OF NITROGEN IN IRON, SILICON ALLOYS -U-
AUTHOR--(02)-MILINSKAYA, I.N., TOMILIN, I.A.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(2), 255-61
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--IRON ALLOY, SILICON ALLOY, NITROGEN, SOLUBILITY, INTERMETALLIC
COMPOUND, NITRIDE, GAS CONTAINING METAL, METAL CONTAINING, NITRIDATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1997/1515
CIRC ACCESSION NO--AP0120296
STEP NO--UR/0048/70/034/002/0255/0261
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120296

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE SOLY. OF N WAS DETD. AS A
FUNCTION OF TEMP. AND SI CONTENT IN THE ALLOYS. THE NITRIDING OF FE-SI
ALLOYS, CONTG. 3.4, 4.3, 5.6, 6.0 AND 8.0 WT. PERCENT SI, WAS CARRIED
OUT IN THE ATM. OF 150-410 TORR N. THE EQUILS. DURING THE ABSORPTION OF
N BY THE SPECIMEN AND THE ELIMINATION OF N FROM THE SPECIMEN WERE
OBTAINED BY THE TEMP. CHANGES AT CONST. PRESSURE. THE SOLY. OF N
INCREASED WITH INCREASING TEMP. EQUATIONS FOR THE SOLY. OF N IN FE-SI
ALLOYS WERE DERIVED. SI SUB3 N SUB4 FORMED DURING THE N ADSORPTION
PROCESS AND ITS SOLY. WAS DETD. FACILITY: TSNIICHM IM. BARDINA,
MOSCOW, USSR.

UNCLASSIFIED

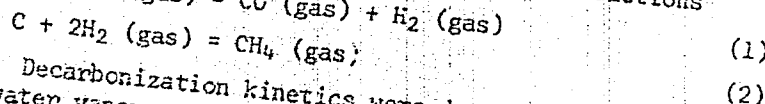
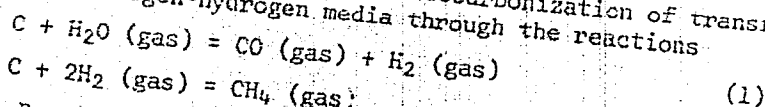
USSR

Miscellaneous

~~TOMILIN~~ I. A., BORISENKO, V. G., PETRENKO, A. G. and SHVARTSMAN, L. A.,
Institute of Metallography and Physics of Metals, Institute of Precision Alloys,
Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin
"Study of Decarbonization Kinetics of Transformer Steel in Moist Nitrogen-Hydro-
gen Media"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya fizicheskaya, Vol. 34, No. 2,
Feb 70, pp 329-332

Abstract: Factors determining the rate of decarbonization of transformer steel
annealed in moist nitrogen-hydrogen media through the reactions



were studied. Decarbonization kinetics were determined as a function of the
hydrogen and water vapor content at 800°C. The decarbonization reaction took
place in a mixed diffusion-kinetic mode. The reaction rate in these limits is
described by a diffusion equation with third-order boundary conditions. The de-
carbonization rate was determined by the Biot number, which increases as the
water vapor content in the gas increases, and it was found that the process goes

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TOMILIN, I. A., et al, Izvestiya Akademii nauk SSSR, Sériya fizicheskaya, Vol. 34, No. 2, Feb 70, pp 329-332

into the diffusion region for 8-10% H₂O by volume. Since the Biot number increases with the water vapor concentration and is independent of hydrogen content, carbon oxidation through reaction (1) is irreversible and the rate of the process is not slowed by increasing the concentration of hydrogen, which is a reaction product.

Card 2/2

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USSR

UDC 669.15'786-194-3

~~TOMILIN, I. A.~~, KONDRAT'YEV, A. I., and IVANOV, B. S., Moscow

"Calculation of the Solubility of Nitrogen in Alloyed Iron Melts Taking Into Account the Deviation From the Ideal"

Moscow, Izvestiya Akademii Nauk USSR, Metally, No 5, Sep-Oct 72, pp 33-37

Abstract: The calculation of the solubility of nitrogen in alloyed iron melts is based on previous investigations by one of the authors (Tomilin, I. A., Ibid., No 2, 1969, p 44, & Chernaya Metallurgiya, No 3, 1968, p 56) which showed a systematic deviation between calculated and experimentally derived concentrations of nitrogen in steel at N contents over 0.3 wt%. This deviation, rising with increasing N concentration, was found to be independent of the type and quantity of alloying elements and the temperature. From the analysis of thermodynamic properties of carbon and nitrogen in iron base melts, an equation is derived which characterizes the nitrogen activity coefficient dependence on its concentration. The correlation of experimental and calculated data confirmed the possibility and expediency of using the concepts developed for calculating the limiting concentration of nitrogen in the melt. Two figures, twelve formulas, eight bibliographic references.

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- END -

CSO: 1842-W

USSR

UDC 621.371

PETROVSKIY, A. D., SMIRNOVA, L. V., and TOMILIN, V. K.

"Results of the Physical Modeling of Radio Wave Propagation in a Conducting Medium Using Screens"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 6 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 6--collection of works) "Nauka," 1972, pp 59-63 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A391)

Translation: The investigation was conducted by the method of physical modeling, based on the principle of electrodynamic analogy. A reservoir filled with a solution of NaCl was used as the model. The antenna feeder devices were made in the form of symmetrical half-wave vibrators; the screens were imitated by aluminum plates. The screening coefficient was obtained in terms of the geometric configuration of the screen. One illustration, bibliography of four. N. S.

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1/2 024 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--EFFECT OF INFECUNDINE IN COMBINATION WITH ETHIMIZOL ON THE
REPRODUCTIVE CAPACITY OF RATS -U-
AUTHOR-(02)-POSKALENKO, A.N., TOMILINA, I.V.
COUNTRY OF INFO--USSR
SOURCE--AKUSH. GINEKOL. (MOSCCW) 1970, 46(3), 46-9
DATE PUBLISHED-----7C
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--REPRODUCTIVE SYSTEM, RAT, BIOLOGIC REPRODUCTION, HORMONE,
SELECTIVE DRUG EFFECT, ADRENAL GLAND, ASCORBIC ACID
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3006/0766 STEP NO--UR/0580/70/046/003/0046/0049
CIRC ACCESSION NO--AP0134499
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0134499

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTS. WERE CONDUCTED WITH 150 MATURE FEMALE RATS, RECEIVING ETHIMIZOL (25-50 MG-KG) AND INFECUNDINE (0.156 MG OF NORETHYNDREL AND 6.2 MU G OF MESTRANOL PER 200 G OF WT.), EITHER SEP. OR IN COMBINATION. THE SUBSTANCES WERE INTRODUCED INTO THE STOMACH VIA A CATHETER ONCE A DAY FOR 14 DAYS. THE ANIMALS WERE KILLED 10-12 DAYS AFTER INSEMINATION. INFECUNDINE INCREASED THE UTERUS WT. FROM 158 TO 212 MG AND DECREASED THAT OF OVARIES FROM 48 TO 41 MG. ETHIMIZOL HAD THE SAME EFFECTS; HOWEVER, THE LOWEST DOSES DID NOT CHANGE THE UTERUS WT. SUBSTANTIALLY. COMBINED INTRODUCTION OF THE SAME DOSES OF INFECUNDINE AND ETHIMIZOL DECREASED THE WT. OF OVARIES FROM 48 TO 36 MG. THE ACTION OF INFECUNDINE WAS DECISIVE IN THIS EFFECT. A CONSIDERABLE INCREASE OF WT. OF ADRENAL GLANDS WAS OBSD. UNDER THE EFFECT OF ETHIMIZOL, WHILE INFECUNDINE HAD NO SUCH EFFECTS. THE CHANGES IN THE ASCORBIC ACID LEVEL IN ADRENAL GLANDS WERE INSIGNIFICANT UNDER THE EFFECT OF ETHIMIZOL, AS WELL AS OF INFECUNDINE. IN INSEMINATION EXPTS., PREGNANCY APPEARED IN 19 OF 20 CONTROL ANIMALS, IN 19 CASES IN ANIMALS RECEIVING ETHIMIZOL, IN 9 ANIMALS RECEIVING INFECUNDINE, AND ONLY IN 3 IN THE GROUP RECEIVING A COMBINATION OF INFECUNDINE AND ETHIMIZOL. FACILITY: LAB. FARMAKOL., INST. AKUSH. GINEKOL., LENINGRAD, USSR.

UNCLASSIFIED

UNCLASSIFIED
TITLE--IMMUNOMORPHOLOGY OF EXPERIMENTAL GLOMERULONEPHRITIS IN THE LIGHT OF
GENERAL PATHOLOGIC PROCESSES -U-
AUTHOR--(05)-SEROV, V.V., MITIN, K.S., VARSHAVSKIY, V.A., UFIMTSEVA, A.G.,
TOMILINA, N.A.
COUNTRY OF INFO--USSR
SOURCE--ARKH. PATHOL. 1970, 32(1), 29-40
DATE PUBLISHED--70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--IMMUNOLOGY, NEPHRITIS, RAT, SERUM PROTEIN, ALBUMIN, URINE,
MITOCHONDRIUM, ENZYME ACTIVITY, DEHYDROGENASE, CYTOPLASM, PHOSPHATASE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1996/0474
STEP NO--UR/9056/70/032/001/0029/0040
ARC ACCESSION NO--AP0117710
UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--09OCT70

ARC ACCESSION NO--AP0117710

EXTRACT/EXTRACT--(U) GP-0-

ABSTRACT. IMMUNOMORPHOL. OF NEPHROTOXIC NEPHRITIS WAS STUDIED ON 75 YOUNG RATS AT VARIOUS STAGES OF THE DISEASE BY BIOCHEM., HISTOCHEM., ELECTRON MICROSCOPIC, AND IMMUNOFLOUORESCENT METHODS. TOTAL BLOOD SERUM PROTEIN IN INTACT RATS WAS 6.38 G PERCENT, IN RATS ON THE 2ND-3RD DAYS OF THE ACUTE STAGE 3.8 G PERCENT, ON THE 4TH-12TH DAYS 5.2 G PERCENT, AND IN RATS WITH CHRONIC NEPHRITIS (31-122 DAYS) 5.65 G PERCENT; ALBUMIN WAS 38.86, 25.1, 27.8, AND 31.1 PERCENT, RESP. PROTEIN IN THE URINE WAS 0, 2.27, 260, AND 0.097 PERCENT, RESP. ELECTRON MICROSCOPY SHOWED STRONGLY VACUOLIZED CYTOPLASMA IN THE PROXIMAL TUBULES AND SWOLLEN MITOCHONDRIA WITH DESTRUCTED CRISTS AND VACUOLES. DESTRUCTION OF MITOCHONDRIA WAS ACCOMPANIED BY DECREASED ACTIVITIES OF SUCCINIC AND MALIC DEHYDROGENASES, NAD AND NADP DIAPHORASES, AND INCREASED ACTIVITY OF LACTIC DEHYDROGENASE. OTHER HISTOL. ALTERATIONS WERE ACCOMPANIED BY DECREASED ALK. PHOSPHATASE AND ITS DIFFUSION INTO THE CYTOPLASMA. LYSOSOMIC ACTIVITY WAS PROVEN BY A STRONG INCREASE OF HYDROLASES, ESP. ACID PHOSPHATASE. ALTERED ENZYMIC ACTIVITIES OF THE TUBULAR EPITHELIUM GAVE EVIDENCE OF SUPPRESSED CELLULAR RESPIRATION AND ACTIVATION OF GLYCOLYSIS AND HYDROLYSIS. IT WAS EMPHASIZED THAT THE GENERALLY ACCEPTED TERM GLOMERULONEPHRITIS DOES NOT REFLECT THE NATURE OF THE PHENOMENON. FACILITY: MOSK. MED. INST. IM. SECHENOVA, MOSCOW, USSR.

UNCLASSIFIED

UNCLASSIFIED
CATHODIC CROSS DIMERIZATION. I. ELECTROCHEMICAL SYNTHESIS OF THE
METHYL ESTER OF OMEGA-CYANOVALERIC ACID -U-
AUTHOR-(02)-MAKAROCHKINA, S.M., TOMILOV, A.P.
PROCESSING DATE--27NOV70
COUNTRY OF INFO--USSR
SOURCE--ZH. OBSHCH. KHIM. 1970, 40(3), 676-80
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--DIMERIZATION, ELECTROLYSIS, ADIPATE, NITRILE, GRAPHITE
ELECTRODE, TIN, LEAD, CATHODE, CARBOXYLIC ACID ESTER, ORGANIC SYNTHESIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3006/0818
CIRC ACCESSION NO--AP0134551
STEP NO--UR/0079/70/040/003/0676/0680
UNCLASSIFIED

CIRC ACCESSION NO--AP0134551
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT. IN THE ELECTROLYSIS OF 150 ML
ELECTROLYTE CONTG. N K SUB2 HPO SUB4, 65 ML CH SUB2:CHCN, AND 17.7 ML CH
SUB2:CHCO SUB2 ME, RUN AT 28DEGREES AND 0.06 A-CM PRIME2 C.D. (THIS GAVE
THE BEST YIELD OF THE NC(CH SUB2) SUB4 CO SUB2 ME), AT PH 7-10 NO
APPRECIABLE YIELD CHANGE WAS EFFECTED BY PH CHANGES. SIMILAR
ELECTROLYSES AT 6-8DEGREES WITH INDICATED CATHODE MATERIALS GAVE THE
FOLLOWING CURRENT EFFICIENCIES (PERCENT), RESP., OF DI-ME ADIPATE, NC(CH
SUB2) SUB4 CO SUB2 ME, AND (CH SUB2) SUB4 (CN) SUB2: GRAPHITE 2.3,
50.4, 15.45; SN 4.6, 31, 0; PB 7.5, 25.5, 2.1; CO 4.9, 22.5, 0; HG 10,
71.3, 1.57; AL 1.3, 1.0, 0; MG 0, 0, MINUS. YIELDS OF THE 1ST 2
PRODUCTS DECLINED SHARPLY WHEN THE TEMP. WAS RAISED ABOVE 10DEGREES.
EVIDENTLY THE REACTION INVOLVES ADDN. OF 2 ELECTRONS TO CH SUB2:CHCO
SUB2 ME TO FORM CH SUB2,CHCO SUB2 ME WHICH WITH THE NITRILE YIELDS
NC,CHCH SUB2 CH SUB2,CHCO SUB2 ME WHICH THEN PICKS UP 2 PROTONS.

UNCLASSIFIED

015
UNCLASSIFIED
TITLE--MECHANISM OF THE ELECTROREDUCTION OF ORGANOMERCURY SALTS -U-
AUTHOR--(05)--YESIKOVA, I.A., TEMKIN, O.N., TOMILOV, A.P., FLID, R.M.,
YAKOVLEVA, N.N.
COUNTRY OF INFO--USSR
SOURCE--Zh. Fiz. Khim. 1970, 44(1), 264-5 (RUSS)
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ELECTROLYTIC REDUCTION, ORGANOMERCURY COMPOUND, CHEMICAL
REACTION MECHANISM, ALCOHOL, ETHANOL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/2063
CIRC ACCESSION NO--AP0125650
STEP NO--UR/0076/70/044/001/0264/0265
UNCLASSIFIED

015
CIRC ACCESSION NO—AP0125650 UNCLASSIFIED
ABSTRACT/EXTRACT—(U) GP-0- ABSTRACT. THE MECHANISM OF THE ELECTROCHEM.
STAGE OF THE ADDN. OF VARIOUS MOLS. TO OLEFINS IN AN ELECTROCHEM. SYSTEM
IN THE PRESENCE OF HG SALTS WAS STUDIED: C SUBN H SUB2N PLUS HX YIELDS
C SUBN H SUB2N POSITIVE X, WHERE X EQUALS OH, OR, RC(O)O, NHR. THE
INTERMEDIATE SIGMA ORGANOMETALLIC COMPS. ARE FORMED FROM OLEFINS AND HG
SALTS IN HX SOLNS. AT THE ELECTROLYSIS OF MERCURIOETHANOL SALTS ON A CU
AMALGAM CATHODE (PH 14, 0.01 A-CM PRIME2) THE PROCESS OCCURRED IN STEPS.
THE MECHANISM OF THE FORMATION OF ALC. AND C SUB2 H SUB4 AT 1.7-1.9 V
IS AS FOLLOWS: HGIC SUB2 H SUB4 OH; SUB2 PLUS E PRIME NEGATIVE YIELDS H
SUB2 O HGC SUB2 H SUB4 OH PLUS ETOH; HG C SUB2 H SUB4 OH PLUS E PRIME
NEGATIVE YIELDS (FAST) (HGC SUB2 H SUB4 OH) PRIME NEGATIVE YIELDS (SLOW)
HG PLUS C SUB2 H SUB4 PLUS CH PRIME NEGATIVE. THE SYM. PRODUCT
DIETHANOLMERCURY WAS OBTAINED BY ELECTROLYSIS OF 4M MERCURIOETHANOL
CHLORIDE SOLN. IN ALK. MEDIA AT 0.8 V. FACILITY: MOSK. INST.
TONKOI KHIM. TEKHNL. IM. LOMONOSOVA, MOSCOW, USSR.

PROCESSING DATE--20NOV70

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--CATHODIC HYDRODIMERIZATION OF ACRYLONITRILE TO ADIPONITRILE FOR
NYLON 66 -U-
AUTHOR--(103)-TOMILOV, A.P., KLIMOV, V.A., VARSHAVSKIY, S.L.
COUNTRY OF INFO--USSR, SOUTH AMERICA
SOURCE--GER. OFFEN. 1,948,445
DATE PUBLISHED--23APR70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--DIMERIZATION, ACRYLONITRILE, ADIPONITRILE, NYLON, GRAPHITE
ELECTRODE, ION EXCHANGE RESIN, COPOLYMERIZATION, STYRENE, BENZENE
DERIVATIVE, CATHODE, ELECTRODE REACTION, PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1995/1061

STEP NO--GY/0000/70/000/000/0000/0000

CIRC ACCESSION NO--AA0116527

UNCLASSIFIED

2/2 022

CIRC ACCESSION NO--AA0116527

UNCLASSIFIED

PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NC(CH SUB2) SUB4 CN WAS PREPD. BY
ELECTROLYZING CH SUB2 .CHCN IN 2N K SUB3 PO SUB4 EMULSION AT 5 A (0.035
A-CM RPRIME2), 18-20DEGREES, AND PH 8 WITH A MAGNETITE ANODE AND A DOPED
GRAPHITE. CATHODE IN 82-93PERCENT CURRENT YIELD. THE POROUS CATHODE WAS
IMPREGNATED WITH ION EXCHANGE POLYMER RESINS BY COPOLYMG. STYRENE AND
(CH SUB2 :CH) SUB2 C SUB6 H SUB4 WITH BZ SUB2 O SUB2 AND SUBSEQUENT
TREATMENT OF THE COPOLYMER WITH (CLCH SUB2) SUB2 O AND SN CHLORIDE (OR
CLSO SUB3 H AND DICHLOROETHANE) AND ET SUB3 N OR ET SUB4 NPOSITIVE
OHNEGATIVE.
S. A. FACILITY: UCB UNION CHIMIQUE-CHEMISCHE BEDRIJVEN,

UNCLASSIFIED

USSR

KATS, R. V., MALYUTINA, G. YA. and TOMILOV, B. YE.

"Application of the Method of Stochastic Approximation to the Search of the Maximum of a Regression Function"

Tr. NII Upravl. Vychisl. Mashin [Works of the Scientific Research Institute for Control of Computer Machines], 1971, No 3, pp 145-149 (Translated from Referativnyy Zhurnal Kibernetika, No 9, 1973, Abstract No 9V209)

Translation: The method of stochastic approximation is used to find the optimal value of temperature, corresponding to the maximum time between failures, for the KVM-1 computer.

YA. Kogan

1/1

USSR

UDC: 681.3

MALYUTINA, G. Ya., SKRIPAL', V. I., TOMILOV, B. Ye.

"Determination of the Density Function for the Distribution of Computer Recovery Time"

V sb. Nadezhnost' upravlyayushchikh vychisl. sistem. Ch. 1 (Reliability of Control Computer Systems--collection of works, Part 1), Kiev, 1970, pp 29-41 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V684)

Translation: It is proposed that a method of stochastic approximation, specifically the classical Robbins-Monroe method, be used for determining the density function for distribution of recovery time on the Ural-11-14 digital computer. The essence of this method is outlined in detail, and an interpretation is presented for distribution density functions on the interval $(0, \infty)$. The advantages of the given method over conventional methods of statistical processing of experimental data are mentioned. V. Mikheyev.

1/1

USSR

UDC: 620.17

TOMILOV, F. K. and KHVAN, D. V., Voronezh Polytechnic Institute

"Study of the Plastic Deformation of Heated Metal Using the Hardness Measurement Method"

Moscow, Zavodskaya laboratoriya, Vol 38, No 2, 1972, pp 225-227

Abstract: The objective of this paper was the application of hardness measurements to studying the plastic deformation of heated metal. The tensile, compression, and torsion tests involved flat specimens of St.3 and 10 steel at 20, 200, and 300°C and L62 brass at 300°C. It is shown that the relationship between the hardness of the cooled-off metal and the stress intensity at higher temperatures is independent of the type of state of stress. This permits the hardness measurements to be of use in studying the state of stress in plastic deformation processes occurring at higher temperatures. The deformation temperature is not to exceed that of recrystallization since the latter removes the strengthening effect produced by deformation. (2 illustrations, 5 bibliographic references).

1/1

Ion Exchange

USSR

UDC 546.04;546.62'33

TOLOV, H. P., FERGEE, A. S., GRANKINA, V. I., POROSHINA, I. A.

"Ion-Exchange Properties of Sodium Hydroalumocarbonate"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSR -- Seriya Khimicheskikh Nauk, No 1, 1973, pp 88-92

Abstract: The results are presented from a study of the equilibrium distribution of cations (Na^+ and Ag^+) and the kinetics of the exchange process between sodium hydroalumocarbonate and AgNO_3 solutions. The cation-exchange isotherm was determined at 25°C for $\text{Na}_2\text{O} \cdot \text{Al}_2\text{O}_3 \cdot 2\text{CO}_2 \cdot 3\text{H}_2\text{O}$ and a mixture of sodium nitrate and silver nitrate solutions. With the ion fraction of silver in the equilibrium liquid phases equal to or greater than 0.1, the degree of substitution of Ag^+ for Na^+ in the equilibrium solid phases is 97-99.5%. The phases with variable Na^+ and Ag^+ content are members of a continuous series of solid solutions between the sodium and silver forms of hydroalumocarbonate. The limiting stage of the exchange is diffusion of the Na^+ and Ag^+ ions in the solid phase. The mutual diffusion coefficient of the indicated ions determined on the basis of the kinetic measurements $\bar{D}_{\text{Na,Ag}} = 5.7 \cdot 10^{-6} \text{ cm}^2/\text{sec}$ agrees satisfactorily with the calculated value of $5.1 \cdot 10^{-6} \text{ cm}^2/\text{sec}$.

USSR

UDC 546.831-38+546.832-38

LEBEDEVA, Ye. N., KOROVIN, S. S., TOMILOV, N. P., and PETROV, K. I.

"Study of the Zirconium and Hafnium Hydroxyperchlorates by Means of IR-spectroscopy"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 16, No 3, Mar 71, pp 666-670

Abstract: Infrared spectra were obtained on the crystal hydrates of zirconium and hafnium hydroxyperchlorates containing varying number of water molecules, on deuterated zirconium crystal hydrate and on the compound with a formula $ZrO(OH)ClO_4 \cdot H_2O$. The spectra of corresponding compounds exhibited similarities in the absorption bands with an intensive complex band at 1100 cm^{-1} and another one of medium intensity at $620-630\text{ cm}^{-1}$, both being assigned to the valence and deformation vibrations of ClO_4^- . The spectra of compounds containing 6 or 8 water molecules indicate absence of the coordination of the perchlorate ion. Spectra of $HfO(ClO_4)_2 \cdot 3H_2O$, $ZrO(ClO_4)_2 \cdot 2H_2O$, and $ZrO(OH)ClO_4 \cdot H_2O$ exhibited definite changes indicating coordination of the ClO_4^- ion with metal cation. No bands were found characteristic of the $Me=O$ group.

1/1

1/2 026 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--SYNTHESIS AND SOME PROPERTIES OF HYDROGALLOCARBONATES OF SODIUM AND
POTASSIUM -U-
AUTHOR--(05)-ICHILOV, N.P., BERGER, A.S., VORSINA, I.A., POROSHINA, I.A.,
MERKULOV, A.G.
COUNTRY OF INFO--USSR

SOURCE--IZVESTIYA SIBIRSKOGO OTDELENIYA AKADEMII NAUK SSSR, NO 4, SERIYA
KHIMICHESKIKH NAUK, 1970, NR 2, PP 87-95
DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CARBONATE, SODIUM COMPOUND, POTASSIUM COMPOUND, X RAY
ANALYSIS, IR SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1993/0584

STEP NO--UR/0289/70/000/000/0087/0095

CIRC ACCESSION NO--AP0113475

UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0113475

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. HYDROGALLOCARBONATES OF SODIUM AND POTASSIUM $\text{Na SUB2 O.GA SUB2 O SUB3. 2 CO SUB2.4H SUB2 O AND K SUB2 O.GA SUB2 O SUB3.2CO SUB2.3H SUB2 O}$ WERE PREPARED FROM THE SOLUTION MIXTURE OF GALLATES AND BICARBONATES OF SODIUM AND POTASSIUM RESPECTIVELY. THE PHYSICO-CHEMICAL CHARACTERISTICS OF THESE SUBSTANCES SUCH AS THE REFRACTION OF LIGHT, SPECIFIC GRAVITY, DIMENSIONS OF CELLS WERE DETERMINED. THE PROCESS OF THERMAL DECOMPOSITION OF SODIUM AND POTASSIUM HYDROGALLOCARBONATES WAS STUDIED UNDER STATIC AND DYNAMIC CONDITIONS OF HEATING AND UNDER HIGH TEMPERATURE X RAY ANALYSIS. SOME PECULIARITIES OF IR SPECTRA OF OBTAINED COMPOUNDS WERE ALSO DISCUSSED.

FACILITY: INSTITUT FIZIKO-KHIMICHESKIKH OSNOV PERERABOTKI MINERAL'NOGO SYR'YA SO AN SSSR, NOVOSIBIRSK.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--MOSSBAUER EFFECT IN THE FES SUBI PLUS X SYSTEM -U-
AUTHOR--GONCHAROV, G.N., OSTANEVICH, YU.M., TOMILOV, S.B., CSER, L.
COUNTRY OF INFO--USSR
SOURCE--PHYSICA STATUS SOLIDI, 1970, VOL 37, NR 1, PP 141-150
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, PHYSICS
TOPIC TAGS--IRON, METAL PHASE TRANSITION, MODEL, MOSSBAUER EFFECT, IRON
SULFIDE, CHEMICAL BONDING, CRYSTAL VACANCY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1999/0636 STEP NO--GF/0030/70/037/001/0141/0150
CIRC ACCESSION NO--AP0107233
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0107233

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY WAS MADE OF THE COMPOSITION DEPENDENCE OF THE MOSSBAUER EFFECT IN THE FES SUB1 PLUS X SYSTEM IN THE RANGE 0 SMALLER THAN OR EQUAL TO 0.135 AT ROOM TEMPERATURE. THE OBSERVED CHANGES OF THE MOSSBAUER PARAMETERS ARE ATTRIBUTED TO PHASE TRANSITIONS AND RELATED TO THE VARIATION OF THE CONCENTRATION OF IRON VACANCIES WITH COMPOSITION. THE MEASURED VALUE OF THE QUADRUPOLE SPLITTING IS IN GOOD AGREEMENT WITH THE PREDICTION FROM THE POINT CHARGE MODEL. THE PRESENCE OF FE PRIME3 COULD NOT BE INFERRED FROM ANY OBSERVATION IN THE STUDIED RANGE OF CONCENTRATION. THE OBSERVED INFLUENCE OF IRON VACANCIES INDICATES A STRONG SUPEREXCHANGE WHICH CAN BE HELD RESPONSIBLE FOR THE FERROMAGNETIC BOND OF IRON SPINS IN THE C PLANE. A SHORT RANGE ORDER OF VACANCIES IS SUGGESTED FOR THE EXPLANATION OF THE OBSERVED COMPOSITION DEPENDENCE OF THE PHASE TRANSITIONS.

UNCLASSIFIED

USSR

UDC 669.046.58:532.73

GUREVICH, Yu. G., TOMILOV, V. I., FRAGE, N. R., and KIM, V. V., Zlatoust Branch of Chelyabinsk Polytechnical Institute

"Kinetics of Interaction of Titanium and Aluminum Nitrides With Slag Melts"

Novokuznetsk, Izv. VUZ, Chern. Metallurgiya, No 10, 1976, pp 15-17

Abstract: It is demonstrated experimentally that TiN interacts with the oxides of iron and manganese from slag, while AlN reacts with silica as well. The activation energies of the process of solution of TiN and AlN in slag melts are found. When metals are reduced from these oxides by nitrides, gaseous nitrogen is released, which may be dissolved in the liquid metal. The rate the process of interaction of nitrides with slags containing oxides of iron, manganese, and silicon is rather high.

1/1

USSR

UDC: 681.3

SHUM, L. S., DIMITRIYEV, Yu. K., TOMILOV, Yu. F., POTAPOVA,
Yu. N.

"A Homogeneous Linear Control Computer System"

V sb. Vychisl. sistemy (Computer Systems--collection of works),
vyp. 39, Novosibirsk, 1970, pp 89-108 (from RZh-Matematika,
No 11, Nov 71, Abstract No 11V794)

Translation: The paper describes a linear homogeneous control
computer system with partially variable structure developed
and constructed at the Institute of Mathematics of the Si-
berian Department of the Academy of Sciences of the USSR. The
computer system can operate in real time and in the time
sharing mode. It can be used both for controlling scientific
and technical experiments and production processes and for
computations. V. Mikheyev.

1/1

USSR

UDC: 681.3

DIMITRIYEV, Yu. K., SHUM, L. S., TOMILOV, Yu. F., POTAPOVA, Yu. N.

"Commutation Block and Interaction of Elementary Computers
in a Homogeneous Control Computer System"

V sb. Vychisl. sistemy (Computer Systems--collection of works),
vyp. 39, Novosibirsk, 1970, pp 107-118 (from RZh-Matematika,
No 11, Nov 71, Abstract No 11V793)

Translation: The paper describes the structure of a commu-
tation block and the principles of interaction between ele-
mentary computers in a linear homogeneous control computer
system. V. Mikheyev.

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USSR

UDC: 681.3

SHUM, L. S., DIMITRIYEV, Yu. K., ~~TOMILOV, Yu. F.~~ POTAPOVA, Yu. N.

"A Linear Homogeneous Computer Control System"

V sb. Vychisl. sistemy (Computer Systems--collection of works), vyp. 39, Novosibirsk, 1970, pp 89-106 (from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V794)

Translation: The paper describes a linear homogeneous computer control system with partially variable structure developed and built at the Institute of Mathematics of the Siberian Department of the Academy of Sciences of the USSR. The system can operate in real-time and time-sharing modes. It can be used both for controlling scientific and technical experiments and processes in production, and for computations. V. Mikheyev.

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USSR

UDC: 681.3

DIMITRIYEV, Yu. K., TOMILOV, Yu. F.

"A Set of Elements for Controlling a Homogeneous Computer System"

V sb. Vychisl. sistemy (Computer Systems--collection of works), vyp. 39, Novosibirsk, 1970, pp 128-136 (from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V789)

Translation: The authors consider a set of logic elements of potential type designed around a threshold element. Estimates are presented for the circuit of a computer based on this set of elements. A comparison is made with analogous estimates for a computer constructed from elements of the "Ural-10" complex. V. Mikheyev.

1/1

USSR

UDC: 535.37+621.373:535

RUBINOV, A. N., TOMIN, V. I., and ZHIVNOV, V. A.

"Shifting of the Molecular Fluorescence Spectrum in the Light Field of a Laser of Nonresonant Frequency"

Leningrad, Optika i Spektroskopiya, No 4, October 1973, pp 778-779

Abstract: A new effect is reported in this brief communication -- a shift in the spectrum of fluorescent organic molecules in solution under the action of nonresonant laser radiation. The experiment detecting this effect was conducted with a solution of 10^{-5} m/l of 4-amino-N-methylphthalamide in glycerin, with the fluorescence in the solution excited by the second harmonic radiation of a ruby laser. A drawing of the absorption spectrum and the fluorescence, originally photographed from an ISP-22 spectroscope, is shown. It was found that the fluorescence spectrum was substantially shifted toward the short wave end if, in addition to the second-harmonic ruby laser radiation, the solution was put under laser radiation of the fundamental frequency. The authors think that this shift is connected with the quenching of the fluorescence and is of a solvatochromic nature.

1/1

USSR

TOMIN, V. I., RUBINOV, A. N.

UDC: 535.371

"Bathochromic Luminescence of Organic Dyes in Alcohol Solutions and Polymer Matrices"

Leningrad, Optika i Spektroskopiya, Vol 32, No 2, Feb 72, pp 424-427

Abstract: New experimental data are presented which confirm the existence of luminescence not only for phthalimide solutions but also for dyes of other chemical classes (coumarins, polymethine dyes) in various solvents, including polymer matrices. The luminescence spectra were photoelectrically recorded. Experimental measurements show that bathochromic luminescence can be observed in liquid dye solutions only at low temperatures but can be observed at room temperatures in solid polymer solutions. A table is given showing the names of the dyes and solvents and also the frequencies of the absorption band maxima, the maxima of the bands of ordinary luminescence at low and room temperatures, maximum of bathochromic luminescence, and the bathochromic luminescence excitation frequencies. Typical spectra are given. The authors thank B. I. Stepanov for interest in the work, and B. N. Kas'yanov and Yu. V. Startsev for assistance with the experiments. Two figures, one table, bibliography of seven titles.

1/1

- 90 -

USSR

RUBINOV, A. N., and TOMIN, V. I.

"Condition for Realizing Stepanov Universal Relationship for Complex Molecules"

Leningrad, Optika i Spektroskopiya, May 1971, pp 859-867

Abstract: The work is devoted to an analysis of the influence of orientation effects of a solution on the realizability of the Stepanov universal relationship between absorption and luminescence spectra of complex molecules in a solution.

To explain existing experimental data on verifying the realizability of a universal relationship for low and room temperatures it is suggested that a solution be considered as a system with nonuniformly broadened absorption and luminescence spectra. The properties of such a system are described by means of a modified system of energy levels, making it possible to define more clearly the conditions for realizing the universal relationship and to explain the dependence of the luminescence spectra of a dye on the temperature.

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USSR

RUBINOV, A. N., and TOMIN, V. L., *Optika i Spektroskopiya*, May 1971, pp 859-867

With the suggested model it is possible to predict the effect of "bathochrome" luminescence: i.e., a shift of the luminescence spectrum to the long-wave region when the solution is excited at the long-wave edge of the absorption band. Experimental data confirming the existence of this effect are obtained.

The article includes 16 equations and 3 figures. There are 16 references.

USSR

UDC 621.378.34

RUBINOV, A. N. and TOMIL, Y. I.

"Excitation of Polymethine Dyes at Low Temperatures"

Minsk, Zhurnal Prikladnoy Spektroskopii, (Journal of Applied Spectroscopy),
(Journal of Applied Spectroscopy), Vol. 13, No. 5, Nov. 1970, p 788, 792

Abstract: Polymethine dyes are used extensively at room temperature for transforming the emission frequency of ruby and neodymium lasers. Since the spectroscopic characteristics of such dyes can change significantly with decrease in temperature, an investigation was made of the dependence of the spectra and excitation energy of two polymethine solutions on temperature: (I) 1, 1'-diethyl-4, 4'-carbocyaniniodide (Cryptocyanine) in glycerine and (II) 1, 1'-diethylindotri-carbo-cyanine in ethanol. The dye solutions were excited by a ruby laser having a 30 to 40 megawatt pulse output of ~ 30 nsec duration. Spectra were recorded with a VF-90 autocollimating camera and ISP-51 spectrograph. The excitation energy was measured by a sensitive "rat-nest" bolometer. The dye samples were cooled by blowing liquid nitrogen vapor through a cryogenic vessel equipped with viewing ports. Output efficiency at room temperature of both dyes for the ruby laser frequency was 30%. Cooling of the dyes to 203°K shifts their emission spectra in the shortwave direction (this occurs also for other dyes). The

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USSR

RUBINOV, A. N., et al, Zhurnal Prikladnoy Spektroskopii, Vol. 13, No. 5, Nov. 1970, p 788, 792

magnitude of the shift depends on the spectroscopic characteristics of the active medium, the concentration of dye molecules, and the coefficient of useful losses in the resonator. For dye I a temperature change from 293° to 203°K shifted the spectrum 120 cm^{-1} . Dye II is greatly dependent on the coefficient of useful losses k_r ; when $k_r = 3.2 \text{ cm}^{-1}$, the shift was $\sim 230 \text{ cm}^{-1}$; when $k_r \sim 0.084 \text{ cm}^{-1}$, it was 750 cm^{-1} . When the temperature of dye I is lowered to 203°K, its luminescence maximum narrows and shifts about 90 cm^{-1} in the short-wave direction, but the power output and absorption maximum remain practically the same. The luminescence maximum of dye II narrows when the temperature is decreased, but does not shift. The distribution of particles over the energy levels is calculated for dye I. In all cases the coefficient of detrimental losses exceeds the absorption coefficient of the solution, which fact indicates that these losses arise in the excitation process and are related to absorption in the triplet or singlet excitation levels. The data show that the distribution of particles over the energy level is practically independent of temperatures, as are the transition probabilities between levels 1, 2, and 3. The population of the metastable level is $\sim 30\%$ of the total number of particles, which fact indicates a strong triplet-triplet absorption. The probability of emissionless singlet-triplet conversion is evaluated. Orig. art. has 3 figs and 10 refs.

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USSR

RUBINOV, A. N.; TOMIN, V. I.

"Bathochromic Luminescence in Solutions of Organic Dyes during Low Temperatures"

Leningrad, Optika i Spektroskopiya; December, 1970; pp 1082-6

ABSTRACT: It is shown that for organic dyes in polar solvents at low temperatures a substantial dependence of the luminescence spectrum on the frequency of the exciting light can be observed. This phenomenon appears, during excitation of the dye, on the long-wave boundary of the absorption band and results in a shift of the luminescence spectrum toward the long-wave region (bathoscopic luminescence). This phenomenon can be explained by an analysis of the energy levels of a fluorescent molecule in a polar solvent.

The article includes 4 equations and two figures. There are 9 references.

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USSR

UDC 622.342:622.732.2

TOMIN, V. S., and ZAKHATIN, O. V.

"On Finishing Coarse-Grained Fractions of Auriferous Concentrates"

Moscow, Tsvetnyye Metally, No 10, Oct 70, pp 82-84

Abstract: A selective granulation method developed by the Irkutsk Scientific-Research Institute of Rare Metals is described. The method is based on the fact that grains of slime minerals and grains of barren rock, when compressed between two surfaces, split up and break down, while gold grains are only deformed, taking a flat shape. This suggests the possibility of subsequent separation of gold grains by screening. Laboratory experiments were conducted on a sample of coarse-grained dredged concentrate: 1.6% magnetite; 46.4% limonite; 3.6% metal scrap; 26.3% FeS_2 ; 2.6% Au; 19.5% schist. In order to check and refine the laboratory experiments, industrial tests of the method of selective granulation were conducted on one of the dredges of the "Lenzoloto" Combine. These tests showed the feasibility of this method for the extraction of gold from coarse-grained slime concentrates.

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1/2 011
UNCLASSIFIED
TITLE--REFINING OF A COARSE GOLD CONTAINING CONCENTRATE AT A CONCENTRATION
MILL OF THE KOMMUNAROVSKII MINE -U-
AUTHOR--(03)--TARASOVA, I.B., TOMIN, V.S., KORZILOVA, A.P.
COUNTRY OF INFO--USSR
SOURCE--TSVET. METAL. 1970, 43(2), 79-81
DATE PUBLISHED--70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--GOLD, AMALGAM, METAL REFINING
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1989/0740
STEP NO--UR/0136/70/043/002/0079/0081
CIRC ACCESSION NO--AP0107282
UNCLASSIFIED

2/2 011
 CIRC ACCESSION NO--AP0107282
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AV. AU CONTENT IN THE COARSE
 CONC. STUDIED WAS 138 G-TON. SOME 96-8PERCENT OF THE AU IS REPRESENTED
 AS FREE PARTICLES, 39PERCENT OF WHICH ARE MINUS 0.21 PLUS 0.15 MM. THE
 AU IS IN THE FORM OF PLATELETLIKE OR IRREGULAR PARTICLES. MOST OF THE
 PARTICLES HAVE PITTED SURFACES WITH THE DEPRESSIONS FILLED WITH VERY
 FINE QUARTZ PARTICLES. APPROX. 80PERCENT OF THE AU IS PRESENT IN THE
 MINUS 0.5 MM FRACTION. THE MINERAL COMPN. AND THE LARGE AMT. OF FREE AU
 WERE FAVORABLE FOR EXTN. OF AU BY AMALGAMATION AND REFINING OF THE CONC.
 BY GRAVITY AND ELECTROSTATIC METHODS. APPROX. 95.8PERCENT OF THE AU CAN
 BE EXTD. BY AMALGAMATION. PRIOR HEAT TREATMENT OF THE CONC. DOES NOT
 INCREASE THE EFFECTIVENESS OF THE AMALGAMATION OF AU. A PRODUCT CONTG.
 1300-2500 G AU-TON CAN BE CONTAINED BY ELECTROSTATIC SEPN. OF THE CONC.
 GROUND TO 0.3-0.21 MM. THE EXTN. OF AU FROM THE ROUGH CONC. DIRECTLY BY
 AMALGAMATION, WITH REFINING OF THE CONC. ACCORDING TO EITHER OF THE TWO
 METHODS IS PRACTICALLY THE SAME. HOWEVER, AFTER REFINING THE CONC. BY
 THE GRAVITY OR THE ELECTROSTATIC METHOD, THE AMT. OF MATERIAL ENTERING
 THE AMALGAMATION PROCESS IS DECREASED BY 15-18 TIMES. THE GRAVITY
 METHOD IS MORE EFFICIENT, SINCE IT IS SIMPLE AND PRODUCES A HIGHER
 CONC. OF AU.

UNCLASSIFIED

PROCESSING DATE--02OCT70

UNCLASSIFIED

Rare Metals

USSR

UDC 622.7-2-15

TARASOVA, T. B., TOMIN, V. S. and KORZHILOVA, A. P.

"Study of Finishing Coarse Auriferous Concentrate of the Kommunar Rudnik Plant"

Moscow, Tsvetnyye Metally, No 2, Feb 70, pp 79-81

Abstract: This article contains a discussion of research performed to improve the gold recovery from the coarse auriferous concentrate of the Kommunar Rudnik Plant. The mean gold content in the coarse concentrate was 138 grams/ton. It was determined by analysis that 96-98% of the gold was in the form of free grains, 39% of which were concentrated in the 0.21 + 0.15 mm fraction. About 80% of the gold was in the 0.5 mm fraction. The mineral composition and large amount of free gold are favorable for recovering the gold by amalgamation and finishing the concentrate by gravitation and electrical methods. Various finishing procedures are described, but it is concluded that in recovering gold from the coarse concentrate directly by amalgamation by using any of the investigated versions, the results are practically identical. However, after finishing the concentrate by gravitation or electrical methods, the amount of material going to amalgamation is reduced by 18-15 times. The gravitation method is considered the more efficient of the two finishing procedures since it is simple and insures higher gold concentration.

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1/2 022 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--THE RELATIONSHIP BETWEEN THE PHENOPHASES AND QUANTITATIVE LEVELS OF
THE ANNUAL COURSE OF THE AIR TEMPERATURE -U-
AUTHOR--TOMKUS, J.
COUNTRY OF INFO--USSR
SOURCE--TRUDY AKADEMII NAUK LITOVSKOY SSR, SERIYA, B, 1970, VOL 1(60), PP
261-269
DATE PUBLISHED-----70
SUBJECT AREAS--ATMOSPHERIC SCIENCES, BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--ATMOSPHERIC TEMPERATURE, PLANT WEATHER EFFECT, SOIL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3007/1190 STEP NO--UR/0000/70/001/000/0261/0269
CIRC ACCESSION NO--AT0136601
UNCLASSIFIED

2/2 022

CIRC ACCESSION NO--AT0136601
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT. THE ARTICLE DEALS WITH THE RESULTS OF THE STATISTICAL RELATIONS BETWEEN THE PHASE OF VEGETATION INDICATORS OF SEASONAL DEVELOPMENT AND STEADY PASSAGE OF AVERAGE DAILY AIR TEMPERATURE OVER 0, 5, 10, 15 DEGREES IN SPRING AND AUTUMN. THE STATISTICAL RELATION PROVE ITS VALUE ONLY FOR PHENOPHASES IN SPRING (THE CORRELATION COEFFICIENT R EQUALS 0.69 PLUS OR MINUS 0.071 AND 0.55 PLUS OR MINUS 0.095). IN SUMMER AND AUTUMN R REDUCES TO ZERO. THE BETTER CORRELATION BETWEEN THE PHENOPHASES AND THE QUANTITATIVE LEVELS OF ANNUAL COURSE OF THE SOIL TEMPERATURE (R EQUALS 0.97 PLUS OR MINUS 0.010 AND 0.48 PLUS OR MINUS 0.141) IS NOTED IN SPRING AND AUTUMN. THE DATES OF QUANTITATIVE LEVELS OF ANNUAL COURSE OF AIR TEMPERATURE ARE INSTANTANEOUS THERMAL CHARACTERISTICS AND DEPENDS IN THE MAIN ON THE ADVECTION OF AIR MASSES. THEY ARE INSUFFICIENT CHARACTERISTIC OF THE PHASE OF VEGETATION. MORE TYPICAL CHARACTERISTICS CAN BE OBTAINED WHILE ANALYSING SOIL THERMAL CONDITIONS. FACILITY: SECTION OF GEOGRAPHY OF THE ACADEMY OF SCIENCES OF THE LITHUANIAN SSR.

UNCLASSIFIED

USSR

UDC: 621.73.01:621.892

TOMLENOV, A. D.

"Critical Thickness of the Lubricating Layer in Metalworking by Pressure"

Moscow, Kuznechno-shtampovoye proizvodstvo, No 3, Mar 72, pp 3-5

Abstract: A method is proposed for calculating the parameters of plastic and viscous lubricant layers in the process of compression of slabs. It is shown that the thickness of the lubricant layer in plastic deformation of metals is a function of ductility, die speed, plastic constant and length of the layer in the direction of flow. All these factors may be considered provided the critical thickness of the lubricant is assumed as its mean value. The thermal resistance of the lubricant is evaluated by the value $R = \delta_{\kappa} (\nu, \omega, \kappa, l) / \lambda$ where δ_{κ} is the critical thickness; ν --the lubricant's viscosity; ω --the rate of convergence of rigid plates; κ --slab constant; l --slab width; λ --lubricant's thermal conductance. (2 illustrations, 9 bibliographic references)

1/1

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TOMME, M.F.

CHEMICAL HUSBANDRY

J665 60575

19 Apr. 73

THE CHEMICAL SYNTHESIS AND APPLICATIONS OF AMINO ACIDS
[Article by Doctor of Chemical Sciences V. N. Belikov, Moscow,
Vsesoiuzni Akademii Nauk SSSR, Russian, No. 6, August 1973, pp. 33-39]

UDC: 547.466

(12)

Proteins of all organisms from the virus to man consist of 24 amino acids which on the basis of their biological value are divided into the replaceable (the organism can itself synthesize them for the construction of proteins at an adequate rate) and the irreplaceable (it cannot synthesize them and must obtain them from outside in the form of food). Each protein contains a definite quantity of each amino acid. If in a contained protein there is none or little of any irreplaceable amino acid, the protein of the organism will not be constructed. From this arises the need for balancing of the ration, that is, the addition to low-valued proteins of lacking amino acids, which leads to an increase of their nutrient value.

On the diagram on the following page, casein -- a nutrient animal protein -- was taken as a standard. The cross-checked part of each column corresponds to the nutrient value of the natural protein in PEC (protein effectiveness coefficient) units. The addition of a certain quantity of lysine, the first limiting amino acid, to the product leads to a sharp increase of nutrient value, and the addition of a second limiting amino acid increases the nutrient value to the level of animal proteins.

balancing is widely used in agriculture, especially in animal husbandry. According to the data of M. F. Tomme and F. Tkachev, the inclusion of 0.2-0.5% lysine to the ration of young pigs and chicks permits reducing the consumption of food protein by 25% and increasing productivity of the animals by 10-15%. Generalizing the results of research of the animals and foreign authors, S. N. Shchegolev calculated that when the production of 20,000 tons of lysine per year has been organized it is possible to obtain an additional 1.2 million tons of meat

Food Technology

USSR

UDC 636.4.084.1+636.5.084.1

TOMME, M. F., and ALEKSEYEV, V. A., Candidate of Agricultural Sciences, All Union Scientific Research Institute of Animal Husbandry

"Use of Chlorella Suspensions in Feeding Chicken and Pigs"

Moscow, Doklady Vsesoyuznoy Ordena Lenina Akademii Sel'skokhozyaystvennykh Nauk imeni V. I. Lenin, No 4, 1970, pp 39-41

Abstract: The biochemical composition of Chlorella suspensions and the effect of feeding them on the growth and development of chicken and pigs were analyzed. Chlorella suspension is rich in biologically active materials: amino acids, vitamins, and microelements. Chicken growth increased by 3-6 percent and weight of pigs increased by 11 percent when Chlorella suspension was added to their diet. It had no ill effects on their appetite, the meat quality was not impaired, and the hematological picture remained unchanged.

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015
TITLE--ANTAGONISM IN BACTERIA OF MALLEOMYCES GENUS -U.. UNCLASSIFIED
AUTHOR--TOMOV, A.TS. 7
COUNTRY OF INFO--USSR
SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 6,
PP 105-108
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--BACTERIAL DISEASE, ANTIBIOTIC, DRUG RESISTANCE, PENICILLIN,
STREPTOMYCIN
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3001/0417
CIRC ACCESSION NO--AP0126170
STEP NO--UR/0016/70/000/006/0105/0108
UNCLASSIFIED

2/2 015

CIRC ACCESSION NO--AP0126170

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD OF DELAYED ANTAGONISM OF
FREDERICO WAS APPLIED TO THE STUDY OF ANTAGONISTIC INTERRELATIONS
BETWEEN BACTERIA OF MALLEOMYCES GENUS. IT WAS FOR THE FIRST TIME
REVEALED THAT SOME STRAINS OF MAL. PSEUDOMALLEI DEPRESSED THE GROWTH OF
MAL. MALLEI STRAINS. THE MOST PRONOUNCED ANTAGONISTIC PROPERTIES WERE
FOUND IN STRAIN NO. 1624. ANTIBIOTIC ACTION OF THIS STRAIN AFFECTED
MANY OTHER SPECIES OF BOTH GRAM POSITIVE AND GRAM NEGATIVE
MICROORGANISMS. THIS STRAIN ALSO PROVED TO BE ANTIBIOTICALLY ACTIVE IN
RESPECT TO THE MICROBES RESISTANT TO PENICILLIN AND STREPTOMYCIN.
FACILITY: VYSSHIY VOYENNO-MEDITSINSKIY INSTITUT SOFIYA.

UNCLASSIFIED

USSR

TOMOV, IV.

UDC 621.357.7:669.248

"X-Ray Diffraction Analysis of Texture in the Case of Single and Double Twinning in Electrolytically Deposited Layers of Nickel"

Izv. Otd. khim. nauki. B'1. AN (News of the Division of Chemical Sciences. Bulgarian Academy of Sciences), 1971, Vol 4, No 2, pp 213-221 (from RZh-Khimiya, No 6 (II), Jun 72, Abstract No 6L302)

Translation: The arrangement of the texture peaks was calculated for the presence of single and double twinning in face-centered and body-centered lattices for the orientation $\langle 001 \rangle$, $\langle 110 \rangle$, $\langle 210 \rangle$, $\langle 211 \rangle$, $\langle 311 \rangle$; the results are presented in a table. A texture goniometer was used to obtain strip diagrams for electrolytically deposited Ni on which the additional texture peaks corresponding to the calculated ones appear clearly.

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USSR

TOMOV, I. V., CHIRKIN, A. S.

UDC 621.375.82

"On the Effectiveness of the Generation of Optical Harmonics of High Order and Multiquanta Processes in a Multimode Radiation Field"

V sb. Kvant. elektronika (Quantum Electronics), No. 1, Moscow, 1971, pp 110-115
(from RZh-Fizika, No 7, Jul 71, Abstract No 7D995)

Translation: The generation of harmonics and multiquanta processes above the second order in a laser radiation field with various statistics for the mode phases were analyzed in the assigned field approximation and in the absence of saturation. General relationships are derived for calculating the effectiveness η_k of a nonlinear process of any k -th order for an arbitrary number of both synchronized and unsynchronized modes. It was shown that synchronization of modes considerably increases the value of η_k . Exact values of η_k are given for the case of synchronized modes for processes of the third and fourth orders and for unsynchronized modes up to processes of the sixth order. 16 ref. Authors abstract.

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USSR

UDC: 621.373:530.145.6

TOMOV, I. V., CHIRKIN, A. S.

"On the Effectiveness of Generation of High-Order Optical Harmonics and Multiple-Quantum Processes in a Multimode Emission Field"

V sb. Kvant. elektronika (Quantum Electronics--collection of works), No 1, Moscow, 1971, pp 110-115 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D176)

Translation: The authors analyze the generation of harmonics and multiple-quantum processes above second-order in a field of laser emission with various phase mode statistics. General relationships are derived which can be used to calculate the efficiency η_k of the nonlinear process of any k-th order for an arbitrary number of both synchronized and unsynchronized modes. It is shown that mode synchronization substantially increases the value of η_k . Exact values are given for η_k in the case of synchronized modes for third and fourth order processes, and in the case of synchronized modes -- up to sixth order processes inclusive. Bibliography of 16 titles. Resumé.

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USSR

UDC 666.76.001.4

BATRAKOV, N. A., GAPRINDASHVILI, A. I. and TCMS, O. V., Ural Polytechnic
Institute imeni S. M. Kirov

"Potential Applications of Exoelectron Emission for Refractory Studies"

Moscow, Ogneupory, No 5, 1972, pp 50-52

Abstract: This study concerns the exoelectron emission from the surface of Dinas brick for glass-making kilns. The experimental results are correlated with the wetting angles of contact with molten glass. Dinas refractories, while having the lowest wettability and a higher resistance to glass, appears to have a low emission capacity. Exoelectron emission is proposed as a method for reflecting the free surface energy of crystalline substances. The study included experimental impregnation of Dinas brick with solutions of orthophosphates, chromium salts, and other phosphates. The characteristics of the impregnated Dinas brick are cited in tabular form. (2 illustrations, 1 table, 5 bibliographic references)

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Titanium

USSR

UDC 669.295:669.785

TOMSINSKIY, V. S., Perm' Polytechnic Institute

"Gas Saturation of Surface of VT6 Titanium Alloy"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 11, 1973,
pp 74-75

Abstract: The article describes results of a study of the effect of gas saturation on the structure and properties of VT6 titanium alloy (6.5% Al, 5.0% V, 0.19% Fe, 0.04% C, 0.02% N, 0.015% H, 0.06% Si) in air and in vacuum at temperatures ranging from 750 to 1200° C and holding times of 5, 30, 60, 180 and 360 min. The microstructure was studied on 7x7x10 mm specimens cut from 25-mm-diameter rolled bars and the microhardness was determined from the cross-section. The results show that gas saturation can be used to harden the surface. The depth and microhardness of the surface gas-saturated layer can be reduced by heating the products in a vacuum.

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USSR

UDC 669.295:536.42

IVANOV, A. S., and TOMSINSKIY, V. S., Perm Polytechnic Institute

"Decomposition of Alpha"-Martensite in Titanium VT16 Alloy"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 1, 1973, pp 102-108

Abstract: A study of the processes of the martensitic alpha"-phase decomposition in VT16 alloy was conducted by high-temperature x-ray diffraction analysis. It was shown that the temperature of the alpha'-beta transformation depends on the concentration of alloying elements in the alpha'-phase. In the process of heating there is observed decomposition of the alpha'-phase into the alpha- and beta-phases and further diffusion decomposition of the unstable beta-phase. Thus in the alloy with an initial state of (alpha"+alpha+beta) the alpha" phase disappears at a temperature below 200°C. In samples having the (alpha"+alpha) composition, the beta-phase appears at 300°C and in samples consisting of only the alpha"-phase -- at 450°C. A further increase of temperature leads to redistribution of the alloying elements in the beta-phase with the formation of enriched and depleted regions in which equilibrium alpha- and beta-phases are then formed. The process of beta-phase decomposition starts above 400°C and is finished at 500°C. Six figures, two tables, and six bibliographic references.

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Titanium

USSR

UDC 669.017:669.295

TOMSINSKIY, V. S., and IVANOV, A. S., Perm' Polytechnic Institute

"Phase Transformations in VT9 Quenched Titanium Alloy During Heating"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 34, No 2, Aug 72, pp 429-431

Abstract: A high-temperature x-ray study was made of the decay process of martensitic α'' -phase in VT9 heat-resistant titanium alloy. Thin plates of the alloy (6.7% Al, 3.06% Mo, 2.46% Zr, 0.222% Si), water quenched from 1000°C and heated in vacuum up to 900°C at a 10 deg/min rate were x-rayed during heating and cooling. The anomalous shift on heating of the (022) line of α'' -phase to the side of larger angles is analyzed. The decay of the α'' -phase principally stops at 600°C; from that temperature the (200) line, now of the β -phase, shifts on heating to the right. On cooling from 900°C, the alloy contains α and β phases. The intensity maxima of the latter shift with decreasing temperature to the side of greater angles, due to a decrease of the lattice parameters at the expense of thermal contraction. The changes of the intensity relations of the lines (022) α'' to (012) α and of (200) β to (012) α on heating and cooling are discussed. Two figures, two bibliographic references.

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USSR

TCMSINSKIY, V. S.

"Scientific and Technical Conference on the Effects of Structural and Phase Transformations on the Properties of Steels and Alloys"

Moscow, Metallovedeniye i termicheskaya obrabotka metallov, No 6, 1972, p 72

Abstract: This article discusses a conference on the Effect of Structural and Phase Transformations on the Properties of Steels and Alloys held in October 1971 in Perm'. The conference was attended by more than 300 representatives of 55 industrial establishments and scientific research and educational institutions of the country. A total of 45 reports were heard at three plenary and two section meetings. The topics included: Phase and Structural Transformations in Steel (N. N. Lipchin); Characteristics of Austenitizing in High-Speed Heating of Steel (V. N. Gridnev, Yu. Ya. Meshkov, and S. P. Oshkaderova); Characteristics of Martensitic Transformations of Steels and Some Alloys (L. I. Lysak); Precipitation Hardened Martensitic Steels (L. M. Kleiner, et al); Characteristics of Stress Distribution in the Surface Layer During Transformations in the Process of Grinding (S. M. Rapoport and L. M. Oslona); Characteristics of Phase Transformations in High-Carbon Steels of Regulated Hardenability (K. Z. Shepelyakovskiy and B. K. Ushakov); and many other equally significant reports.

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USSR

UDC 669.295:669.017.3

IVANOV, A. S., and TOMSINSKIY, V. S., Perm' Polytechnic Institute

"X-Ray Structural Phase Transformations in VT14 Titanium Alloy During Heating"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 33, No 6, Jun 72,
pp 1239-1242

Abstract: The roentgenostructural analysis method was used for the investigation of the change of parameters of the crystalline lattice and the quantitative correlation of α - and β -phases in heating and cooling processes of VT14 titanium alloy. A continuous decrease up to room temperature of lattice parameters of α - and β -phases takes place when cooling; the β -phase, in comparison with the same temperatures at heating, remains more enriched with alloying elements and the α -phase becomes correspondingly impoverished. The latter explains the predominance of β -phase when cooling. At heating up to 400°C, in the annealed VT14 alloy practically no redistribution of alloying elements takes place. In the 400-500°C temperature interval, the activation of diffusion processes produces a sharp redistribution of alloying elements and a decrease of concentration heterogeneity, connected with the structural heterogeneity of the annealed alloy. At temperatures higher than 500°C, a gradual redistribution of alloying elements in α - and β -phases takes place in accordance with the diagram of state. Four figures, five bibliographic references.
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USSR

UDC 681.2.08

VOSKOBYNIKOV, Yu. Ye., TOMSONS, Ya. Ya., Novosibirsk

"The Recovery of the Spectral Densities of Input Signals in Measuring Systems"
Novosibirsk, Avtometriya, No 4, Jul-Aug 73, pp 27-34

Abstract: It is frequently necessary to determine integral characteristics of random processes measured by some device. To increase the frequency range observed and reduce error, it is necessary to consider the dynamic characteristics and noise of the measuring system. Such systems can usually be represented by an integral relationship:

$$\int_{-\infty}^{\infty} k(t-\tau)x(\tau)d\tau + n(t) = y(t) + n(t) = z(t); \quad t \in [0, T].$$

However, within a frequency band we have the expression

$$A(\omega)\Gamma_{xx}(\omega) + \Gamma_{nn}(\omega) = \Gamma_{zz}(\omega),$$

where $\Gamma_{xx}(\omega)$ and $\Gamma_{nn}(\omega)$ are the spectral densities of the input signal and noise respectively, and $A(\omega) = |W(i\omega)|^{-2}$; $W(i\omega) = \int_{-\infty}^{\infty} k(\tau)e^{-i\omega\tau}d\tau$. It is 1/2

-USSR

VOSKOBYNIKOV, Yu, Ye., TOMSONS, Ya. Ya., Avtometriya, No 4, Jul-Aug 73, pp 27-34

shown that an analysis based on the determination of $\Gamma_{zz} \omega$ and the evaluation of the input signal spectral density from the second expression is more accurate and simpler than an analysis based on the first expression.

Since the calculation of an optimal evaluation requires knowledge of the ratio of the noise spectral density to the output spectral density, which is frequently not available, a method of quasi-optimal evaluation is derived. Criteria are developed for determining the quality of evaluations on the basis of the signal-to-noise ratio at each frequency of the output signal.

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USSR

UDC: 519.2

TOMUSYAK, A. A.

"On a Problem of Designing Redundant Systems With Recovery"

Moscow, Izbr. tr. Vses. mezhvuz. simpoz. po prikl. mat. i kibernet., Gor'kiy, 1967 (Selected Works of the All-Union Intercollegiate Symposium on Applied Mathematics and Cybernetics, Gor'kiy, 1967), "Nauka", 1973, pp 223-225 (from RZh-Kibernetika, No 7, Jul 73, abstract No 7V253 by I. Kovalenko)

Translation: The author considers a controlled semi-Markov process whose defining characteristics depend on the whole-number control vector n which belongs to some simplex. (In application to optimization of redundancy, the vector n is interpreted as a set of multiplicities of redundancy of the elements of the system). A method is constructed for maximizing the stationary probability of finding a semi-Markov process in a fixed set of states. This method is based on the theory of graphs. An example is considered: maximizing the reliability of a sequential system consisting of one type of elements, where the number of reserve elements and the number of repair channels can be varied.

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172 035
UNCLASSIFIED
TITLE--PROTONS POLARIZATION ARISING DURING THE INTERACTION OF 650-840 MEV
PHOTONS WITH LITHIUM-7 AND CARBON-12 -U-
AUTHOR--(05)-TONAPETYAN, S.G., KONOVALOV, O.G., DERECHINSKIY, A.I.,
ZYBALOV, A.A., KHVOROSTYAN, V.M.
COUNTRY OF INFO--USSR
SOURCE--PIS'MA ZH. EKSP. TEOR. FIZ. 1970, 11(3), 165-8
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY
TOPIC TAGS--PROTON POLARIZATION, PHOTONUCLEAR REACTION, ELASTIC
SCATTERING, GRAPHITE, LITHIUM ISOTOPE, CARBON ISOTOPE, GAMMA SPECTRUM,
PHOTO EMF
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1988/0242
CIRC ACCESSION NO--AP0105318
STEP NO--UR/0386/70/011/003/0165/0168
UNCLASSIFIED

2/2 035
CIRC ACCESSION NO--AP0105318 UNCLASSIFIED
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POLARIZATION, P, OF P WHICH
ARE ELASTICALLY SCATTERED ON NUCLEI OF GRAPHITE ELECTRODES WAS CALCD.
AT ENERGIES OF PHOTOCURRENTS OF 700-900 MEV, P POL RIZATION FOR NUCLEI
OF PRIME7 LI AND PRIME12 C IS CLOSE TO ZERO. IN THE MESON II KINEMATIC
REGION P CHANGES SHARPLY FROM MINUS 0.76 TO 0.48 AS THE PHOTON ENERGY
INCREASED. FOR PHOTONS WITH ENERGIES 650, 715, AND 840 MEV, IN THE
REACTION GAMMA PLUS N YIELDS N PRIME NEGATIVE PLUS P, P EQUALS MINUS
0.74, MINUS 0.16, AND 1.66, RESP. FACILITY: FIZ.-TEKH. INST.,
KHARKOV, USSR.

UNCLASSIFIED

USSR

UDC: 539.171

BARASHENKOV, V. S., IL'INOV, A. S., SOBOLEVSKIY, N. M., and
TONEYEV, V. D., Joint Institute of Nuclear Research, Dubna

"Interaction of High-Energy and Ultra-High-Energy Nuclei and
Particles With Nuclei"

Moscow, Uspekhi Fizicheskikh Nauk, No 1, 1973, pp 91-136

Abstract: This article is a rather qualitative review of the achievements made thus far from the study of collisions between high-energy and ultra-high energy particles and nuclei on the one hand, and nuclei on the other. This branch of nuclear physics has only recently come into its own and has proved a valuable tool for computing radiation protection for high-altitude aircraft and space ships, for the "electronuclear" method of obtaining atomic energy and acquiring rare isotopes, and for solving problems in the resistance of materials to radiation, among other things. Besides the general introduction to the subject, the topics treated in this review are: the mechanism of intranuclear cascades; the nucleus model and the computation of particle collisions with intranuclear nucleons; the general method of cascade

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UDC: 539.171

BARASHENKOV, V. S., et al., Uspekhi Fizicheskikh Nauk, No 1, 1973,
pp 91-136

computation; comparison of the cascade model and experiment; the model of intranuclear cascades in energies greater than several gigaelectron volts; intranuclear cascades at ultra-high energies beyond 10 Gev; the theory of inelastic collision between two nuclei; and a concluding section containing the authors' recommendations for further study. A bibliography of 85 titles is appended.

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USSR

UDC: 539.12.17

BARASHENKOV, V. S., SOBOLEVSKIY, N. M., ~~TONEYEV, V. D.~~

"Passage of Beams of High-Energy Particles Through Thick Layers of Matter"

Moscow, Atomnaya Energiya, Vol 32, No 3, Mar 72, pp 217-221

Abstract: In their previous article (Atomnaya Energiya, Vol 32, p 123) the authors described a procedure for calculating a nucleon-meson cascade in a block of matter, and they also studied the distribution of particle fluxes initiated by high-energy primary radiation inside and outside blocks of various compositions and dimensions. In this paper the same method is used for studying in more detail the characteristics of secondary particle fluxes behind a thick shield. The calculations are done by modeling the "fate" of each individual particle in the material by the Monte-Carlo method. Each case of inelastic interaction of a particle with a nucleus is calculated by the Monte-Carlo method according to the cascade-evaporative model. The behavior of neutrons with energies below 10.5 MeV was modeled on the basis

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USSR

BARASHENKOV, V. S. et al., Atomnaya Energiya, No 3, 1972, pp 217-221

of reactor constants. The results were compared with measurements on the synchrocyclotron at the Joint Institute of Nuclear Research at energies of 340 and 660 MeV. The geometry of the experiments was strictly reproduced in the computations: aluminum blocks with thicknesses of 75 and 150 g/cm² were exposed to a collimated beam of protons with a radius of 1 cm. The results show that the proposed method can be successfully used both for computing integral characteristics (such as the overall particle flux) and for obtaining detailed information: the spatial structure of the radiation behind the shielding, the different spectral-angular characteristics, their correlations, etc. The comparison of theoretical and experimental results shows that the accuracy of calculations depends most on the completeness of knowledge of the experimental conditions. Indefiniteness as to the individual parameters of the model plays no appreciable part. One figure, eight tables, bibliography of nine titles.

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USSR

YELKINA, V. G., KONNOVA, N. A., and TONIYANTS, YE. G., Tashkent
Oblast Sanitary Epidemiological Laboratory

"A Six-Year Virological Study of Influenza in Tashkent Oblast"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 1, 1970, pp 31-34

Abstract: A study of 1,222 throat smears taken from patients with acute respiratory diseases between 1962 and 1967, and from autopsy material (66 cadavers) was performed on chicken embryos. Twenty influenza virus strains were isolated, representing 1.7 percent of all flu viruses. Six strains of the A2 type were isolated during the 1962 flu epidemic, one strain of the B type was isolated in 1964; 11 strains of the A2 type in 1965; and two strains of the 2A type in 1967. In the 1963-1964 interepidemic period, the A2 types was recorded in 3.5-3.7% of all cases; the B type in 1.5-1.8; and the parainfluenza D type in 0.2-0.8% of cases. The flu epidemic of February, 1965, was caused by the A 2 type, which was diagnosed in 40.4% of patients with acute respiratory diseases. In December, 1966, and in early January, 1967, the disease was caused mainly by type B virus (55-56.2%). In January through March, the A2 type

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USSR

YELKINA, V. G., et al., Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 1, 1970, pp 31-34

predominated (70.3%). Between 1963 and 1967, 4, 242 sera of healthy donors were tested for immunity level. High immunity levels were recorded against viruses of type A2 (52.2%), B (76.8%), and D (73.0%) as a result of the A2 and B flu outbreak in 1962. In 1964, the concentration of antibodies against all viruses (but especially the A2 types), was markedly reduced, indicating a new outbreak, which took place in February, 1965. After that, the titer of antibodies against the A2 type virus rose threefold and fell again a year later. The last flu wave in December, 1966, and January-February, 1967 again increased people's immunity to the A2 and B type viruses up to the level observed in 1963. Virological studies are gaining importance in medical practice and in the influenza diagnosis.

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USSR

UDC: 681.325.3

KUSTOV, Ye. S., ROMANTSOV, V. D., ROMASHKAN, V. S., TONKAL', A. Ye.

"Voltage-Code Converter"

Pribery i Sistemy Avtomatiki. Resp. Mezhved. Nauchno-Tekhn. Sb. [Automation Devices and Systems. Republic Interdepartmental Scientific-Technical Collection], No 13, 1970, pp 88-94 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, 1970, Abstract No 10B273, by T. D.)

Translation: A dc voltage-to-binary 10-digit code converter is described. The converter is built of semiconductor devices and operates by digit-by-digit comparison. The principal error of the converter is not over $\pm 0.25\%$, the input impedance is 2 kohm, the speed is 2000 conversions per second, the voltage measurement range is 0-10 v. The converter uses "Mir-1" potential modules. The principal non-standard units of the converter determining its accuracy are made of high-stability elements. The compensator uses a wire-wound resistor of manganin microwire, silicon transistors, and silicon diodes. A potential type null-balance device with a sensitivity of ± 3 mv is used. Six illustrations; two biblio. refs.

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USSR

MILYAKH, A. N., LIPKOVSKIY, K. A., TONKAL', S. S. UDC 621.314.57

"Single-Phase Thyristor Inverter With Sinusoidal Output Voltage"

Kiev, V sb. Ustroystva preobrazovat. tekhn. (Converter Technology Devices -- collection of works), No 3, 1969, pp 37-46 (from RZh -- Elektronika i yeye primeneniye, No 2, Feb 70, Abstract No 2B483)

Abstract: An inverter is considered in which shaping of the output voltage takes place by the step principle. The primary winding of the transformer output has three sections. Two thyristors are connected by their cathodes to the external terminals of the winding, and two more thyristors are connected by their anodes to the beginning and end of the middle section. The anodes of the first pair of thyristors are connected to a plus, and the cathodes of the second pair to a minus source of directed current. The output voltage of step form consists only of odd harmonics, beginning with the ninth. Expressions are presented making it possible to perform computations for the elements of the in-
verter. 4 ill. 2 ref. I.R.

USSR

UDC 621.314.57

TONKAL', V. YE., LIPKOVSKIY, K. A., ^TTONKAL', S. S.,
CHEREDNICHENKO, A. F.

"Qualitative Characteristics of Output Voltage of Single-Phase
Inverters With Amplitude or Pulse-Duration Modulation"

Kiev, V sb. Ustroystva preobrazovat. tekhn. (Converter Tech-
nology Devices -- collection of works), No 1, 1969, pp 18-30
(from RZh -- Elektronika i yeye primeneniye, No 2, Feb 70,
Abstract No 2B490)

Abstract: Two methods are compared for improving the harmonic
composition of the output voltage of converters: modulation of
it by the step principle, and by pulse-duration modulation. An
analytical generalization is conducted of shaping of output
voltage with n-steps or n-pulses, the shaping principle, and
also a harmonic analysis curve with both conditions. Step modu-
lation is preferred because: 1) with an identical number of
commutations, the harmonic content is smaller; 2) a number of
harmonics are destroyed; 3) the coefficient of the harmonics is
smaller; and 4) the control system is simpler. 5 ill. 5 ref.
1/1 I.R.

USSR

UDC 621.314.57

TONKAL', S. S., GRECHKO, E. N.

"Thyristor Inverter With an Improvement of the Harmonic Composition of the Output Voltage Curve"

Kiev, V sb. Probl. tekhn. elektrodinamiki (Problems of Electrodynamical Technology -- collection of works), No 19, "Nauk dumka," 1969, pp 38-40 (from RZh -- Elektronika i yeye primeneniye, No 2, Feb 70, Abstract No 2B494)

Abstract: A three-phase bridge inverter contains a three-winding output transformer with two primary and one secondary winding, four commutating thyristors (connected with the exterior terminals of the primary winding through a commutating capacitor), and two commutating chokes (one at the plus and one at the minus side). The primary windings of the transformer are connected in series and have an unequal number of turns. The operating thyristors are connected to the end and middle points of the primary winding. At the output a step voltage curve is obtained which is close to a sinusoidal form. 3 ill. 1 table. 3 ref. I.R.

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USSR

UDC 621.311.26:621.311.072.311.011.3.076.12

MILYAKH, A. N., TONKAL', V. Ye., and BUKHINSKIY, S. I.

"Possibility of Self-Compensation of the Reactive Load Power in Multiphase Frequency Converters"

V sb. Probl. tekhn. elektrodinamiki (Problems of Technical Electrodynamics -- collection of works), vyp. 24, Kiev, Naukova Dumka Press, 1970, pp 3-8 (from RZh-Elektrotehnika i Energetika, No 4, Apr 71, Abstract No 4 Ye242)

Translation: A study is made of a circuit permitting use of the reactive power of an RL-load to improve the power factor of a multiphase frequency converter. In the example of operation of a three-phase frequency converter with a sinusoidal output voltage on a symmetrical linear actively inductive load it is demonstrated that the described circuit is operating properly when $\cos \phi$ of the load is no less than 0.5544. The calculation formulas for determining the total active power, the reactive power and the distortion power in the presence of compensation are presented. There are 5 illustrations, 1 table, and a 5-entry bibliography. [Institute of Electrodynamics of the Ukrainian SSR Academy of Sciences, Kiev]

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USSR

UDC 621.314.57(088.8)

~~TCNALL, V.YE.~~ [In-t elektrodinam. AN USSR--Institute Of Electrodynamics, AS Ukrainian SSR]

"Autonomous Bridge Inverter"

USSR Author's Certificate 260731, filed 24 Jan 67, published 11 May 70 (from RZh--Elektronika i yeye prizeneniye, No 12, December 1970. Abstract No 12B513P)

Translation: An autonomous bridge inverter is proposed in which the unit for forced commutation consists of a capacitor and, connected with it in series, a network [tsepochnika] of branches connected in parallel; two anti-parallel connected commutating thyristors, and a supplementary winding of the output transformer, are connected in series with two anti-parallel connected supplementary commutating thyristors. The presence of the latter branch leads to a reduction of the dimensions and an increase of the frequency range of the inverter. 1 ill. I.R.

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1/2 020
UNCLASSIFIED
TITLE--MAGNETO SEMICONDUCTING MODULATION TRANSFORMERS OF FREQUENCY -U-
AUTHOR--(02)-TONKAL, V.YE., MELNICHUK, L.P.
COUNTRY OF INFO--USSR
SOURCE--MAGNETO SEMICONDUCTING MODULATION TRANSFORMERS OF FREQUENCY
(MAGNITO POLYPROVODNIKOVYYE MODULYATSIONNYYE PREEBRAZOVATELI CHASTOTY)
DATE PUBLISHED-----70
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.
TOPIC TAGS--MAGNETIC TRANSFORMATION, ELECTRONIC TRANSFORMER, SEMICONDUCTOR
DEVICE, ELECTROMAGNET COMPONENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY KEEL/FAME--1991/0574
STEP NO--UR/0000/70/000/000/0001/0189
CIRC ACCESSION NO--AM0110368
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AM0110368

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: INTRODUCTION
3. CHAPTER I GENERAL PROBLEMS IN THE CONSTRUCTION OF MODULATION
FREQUENCY TRANSFORMERS 5. II THE AMPLITUDE MODULATION OF ALTERNATING
VOLTAGE IN MAGNETO SEMICONDUCTING FREQUENCY TRANSFORMERS 15. III THE
CHARACTERISTICS OF THE WORK OF ELECTROMAGNETIC ELEMENTS IV TRANSFORMERS
44. IV ELECTRO MAGNETIC AND MAGNETO SEMICONDUCTING MODULATORS OF
FREQUENCY TRANSFORMERS 87. V ANALYSIS OF THE WORK AND CHARACTERISTIC
OF AN ELECTROMAGNETIC TRANSFORMER OF REGULATED FREQUENCY 116. VI
ELECTROMAGNETIC TRANSFORMERS OF FREQUENCY WITH STEPPED UP POWER INDEXES
139. VII MAGNETO SEMICONDUCTING FREQUENCY TRANSFORMERS 166.
LITERATURE 186. IN THIS MONOGRAPH ARE DESCRIBED BASIC PROBLEMS OF
THEORETICAL AND EXPERIMENTAL INVESTIGATION OF STATIC FREQUENCY
TRANSFORMERS OF MODULATION TYPE, CONSTRUCTED ON ELECTROMAGNETIC AND
SEMICONDUCTING ELEMENTS. THE BOOK IS FOR A WIDE RANGE OF SCIENTISTS AND
ENGINEERS.

UNCLASSIFIED

USSR

UDC 621.314.57

TONKAL', V. YE., LIPKOVSKIY, K. A., TONKAL', S. S.,
CHEREDNICHENKO, A. F.

"Qualitative Characteristics of Output Voltage of Single-Phase Inverters With Amplitude or Pulse-Duration Modulation"

Kiev, V sb. Ustroystva preobrazovat. tekhn. (Converter Technology Devices -- collection of works), No 1, 1969, pp 18-30
(from RZh -- Elektronika i yeye primeneniye, No 2, Feb 70,
Abstract No 2B490)

Abstract: Two methods are compared for improving the harmonic composition of the output voltage of converters: modulation of it by the step principle, and by pulse-duration modulation. An analytical generalization is conducted of shaping of output voltage with n-steps or n-pulses, the shaping principle, and also a harmonic analysis curve with both conditions. Step modulation is preferred because: 1) with an identical number of commutations, the harmonic content is smaller; 2) a number of harmonics are destroyed; 3) the coefficient of the harmonics is smaller; and 4) the control system is simpler. 5 ill. 5 ref.
1/1 I.R.

USSR

UDC 621.314.57

MEL'NICHUK, L. P., TONKAL', V. YE., LIPKOVSKIY, K. A.

"Magneto-Thyristor Frequency Converter With Sinusoidal Form of Output Voltage"

Kiev, V sb. Probl. tekhn. elektrodinamik (Problems of Electrodynamical Technology -- collection of works), No 19, "Nauk. dumka," 1969, pp 20-24 (from RZh -- Elektronika i yeye primeneniye, No 2, Feb 70, Abstract No 2B495)

Abstract: An inverter is considered in which a sinusoidal output voltage is shaped from a high-frequency voltage with the aid of a magnetic amplifier-modulator. Control of the amplitude of the output voltage is also accomplished by the latter. The inertia of the magnetic amplifier limits the frequency of the output voltage. Use of a semiconductor amplifier is recommended in order to increase the speed of response. 3 ill. I.R.

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USSR

UDC 621.314.57

MEL'NICHUK, L. P., GRECHKO, E. N., BURKHINSKIY, S. I.,
TONKAL', V. YE.

"Thyristor Single-Phase Inverter With Double-Pole Pulse-Duration Modulation"

Kiev, V sb. Ustroystva preobrazovat. tekhn. (Converter Technology Devices -- collection of works), No 1, 1969, pp 86-98
(from RZh -- Elektronika i yeye primeneniye, No 2, Feb 70,
Abstract No 2B489)

Abstract: Double-pole pulse-duration modulation is preferable for an accepted inverter circuit, in which the method of direct shaping of the control pulses with the trapezoidal principle for change of the pulse widths is advisable. A block diagram is given of the master oscillator which shapes the pulses, which are supplied through shift registers and corresponding logical elements and a diode matrix to the shaper of the pulses for the converter's thyristors. The dependence is shown of the number of commutations per period, and the amplitude of the output voltage and frequency on the number of pulses entering from the

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USSR

MEL'NICHUK, L. P., et al, V sb. Ustroystva preobrazovat. tekhn.,
No 1, 1969, pp 86-98 (from RZh -- Elektronika i yeye primeneniye,
No 2, Feb 70, Abstract No 2B489)

Abstract: shift registers. The transition processes in a
commutation period are analyzed. 5 ill. 2 tables. 5 ref. I.R.

2/2

1/2 009 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--STRUCTURAL ORGANIZATION OF THE PROTEIN SYNTHESIZING SYSTEM OF
CHLOROPLASTS -U-
AUTHOR--(04)-FILIPPOVICH, I.I., TONGUR, A.M., ALINA, B.A., OPARIN, A.I.
COUNTRY OF INFO--USSR
SOURCE--BIOKHIMIYA 1970, 35(2), 247-56
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--CHLOROPLAST, PROTEIN SYNTHESIS, DNA
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3009/0196 STEP NO--UR/0218/70/035/002/0247/0256
CIRC ACCESSION NO--AP0139059
UNCLASSIFIED

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009

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0139059

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROTEIN SYNTHESIZING CAPACITY AND THE ELECTRON MICROSCOPIC APPEARANCE OF DIFFERENT RIBOSOME FRACTIONS WERE STUDIED. RIBOSOMES FROM CHLOROPLASTS OF PEA SEEDLINGS WERE DISASSOC. STEPWISE FROM LAMELLAR STRUCTURES, PROTEINS, AND LIPOPROTEINS BY CONTROLLED TREATMENT WITH NA DEOXYCHOLATE AND FROM CONNECTED NUCLEI ACIDS BY TREATMENT WITH DNASE, TRITON X-100, AND NA DODECYL SULFATE. THE DIFFERENT RIBOSOME PREPNS. THUS OBTAINED WERE SEPD. INTO COMPONENTS BY CENTRIFUGATION IN A SUCROSE GRADIENT. AS EVIDENCED BY ELECTRON MICROSCOPY, THE EFFECT OF DETERGENTS WAS TO SOLUBILIZE FIRST THE THYLAKOID BINDING LIPOPROTEINS, AND THEN THE LIPOPROTEINS LOCATED INSIDE THE INDIVIDUAL THYLAKOIDS. FURTHER REMOVAL OF LIPOPROTEINS AND PROTEINS FROM THESE STRUCTURES LED TO THE LIBERATION OF CYCLIC POLYRIBOSOMES, WHICH WERE STILL CONNECTED TO DNA MOLS. IT IS SUGGESTED THAT EACH SEGMENT OF DNA IS COUPLED WITH CYCLIC POLYRIBOSOMES AND EMBEDDED IN A THYLAKOID.

FACILITY: A. N. BAKH INST. BIOCHEM., MOSCOW, USSR.

UNCLASSIFIED

1/2 024 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--EFFECT OF ULTRAVIOLET RAYS ON SINGLE LAYER SEPARATION SURFACES OF
LIPCVITELLIN -U-
AUTHOR--(03)--TENGUR, A.M., VUKOVA, M.S., PAVLOVSKAYA, F.YE.
COUNTRY OF INFO--USSR
SOURCE--RADIOBIOLOGIYA 1970, 10(2), 283-8
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--LIPID, ELECTRON MICROSCOPY, UV RADIATION, BIOLOGIC EFFECT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605004/C02 STEP NO--UR/0205/70/010/002/0283/0288
CIRC ACCESSION NO--AP0139612
UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--11DEC70
CIRC ACCESSION NO--AP0139612
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DENATURATION OF LIPOVITELLIN BY UV
(MAX. 254 NM) CAUSED AN INCREASE IN THE SURFACE AREA OF THE LIPOVITELLIN
MONOLAYER ON SOL WITH A HIGH IONIC STRENGTH. THE PERMEABILITY OF THE
MONOLAYER ALSO INCREASED AND MAX. PERMEABILITY WAS REACHED AFTER A DOSE
OF 1.2 TIMES 10 PRIME7 ERG-CM PRIME2. THE UV RADIATION DECREASED THE
HYDROPHOBIC BONDS BETWEEN THE PROTEIN AND THE LIPID COMPONENTS. THIS
WAS CONFIRMED BY ELECTRON MICROSCOPY WITH OSO SUB4. FACILITY:
INST. BICKHIM. IM. BAKHA, MOSCOW, USSR.

UNCLASSIFIED

020
UNCLASSIFIED
TITLE--CHANGE IN THE PERMEABILITY OF NUCLEOPROTEIN MONOLAYERS UNDER THE
INFLUENCE OF X RAYS -U-
AUTHOR--(03)-TONGUR, A.M.; PAVLOVSKAYA, T.YE.; NIKULIN, YU.P.
PROCESSING DATE--30OCT70
COUNTRY OF INFO--USSR
SOURCE--RADIOBIOLOGIYA 1970, 10(11), 9-13
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--NUCLEOPROTEIN, PERMEABILITY MEASUREMENT, X RAY RADIATION
BIOLOGIC EFFECT, RADIATION DOSAGE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/0485
CIRC ACCESSION NO--AP0121159
STEP NO--UR/0205/70/010/001/0009/0013
UNCLASSIFIED

2/2

020

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121159

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT.

THE PERMEABILITY OF X IRRADIATED DEOXYRIBONUCLEOPROTEIN MONOLAYER AND OF THE MONOLAYER PREPD. FROM X IRRADIATED DEOXYRIBONUCLEOPROTEIN HAS BEEN EVALUTED IN A MODEL SYSTEM. SUBSTRATE (1.4 TIMES 10 PRIME NEGATIVE3 M METHYLENE BLUE IN 2M NACL AND 5.3 TIMES 10 PRIME NEGATIVE2 M ASCORBIC ACID) WAS SEPD. FROM AN AQ. SOLN. CONTG. H SUB2 O SUB2 BY THE DEOXYRIBONUCLEOPROTEIN MONOLAYER. THE PERMEABILITY WAS EVALUATED ACCORDING TO THE COLGRING OF THE SUBSTRATE. THE IRRADN. OF THE MONOLAYER BY A DOSE OF 2 OR 3.5 KR INCREASED THE PERMEABILITY BY 40PERCENT OR 70PERCENT, RESP.; THE BARRIER EFFECT OF THE MONOLAYER DISAPPEARED COMPLETELY AFTER IRRADN. WITH 5 KR. CHANGES OF THE PERMEABILITY OF MONOLAYERS PREPD. FROM THE IRRADIATED DEOXYRIBONUCLEOPROTEINS WERE NOTED ONLY AT HIGH DOSES; DOSES OF 5 TIMES 10 PRIMES AND 10 PRIME6 R INCREASED THE PERMEABILITY BY 28PERCENT AND 33PERCENT, RESP.

FACILITY: INST. BIOKHM. IM. BAKHA, MOSCOW, USSR.

UNCLASSIFIED

172 032
UNCLASSIFIED
TITLE--APPLICATION OF CYBERNETIC CONCEPTS AND TECHNIQUES IN
NEUROPSYCHOLOGICAL INVESTIGATIONS -U-
AUTHOR--TONKONOGIY, I.M.
COUNTRY OF INFO--USSR
SOURCE--VESTNIK AKADEMII MEDITSINSKIKH NAUK SSSR, VOL 25, NO 1, 1970,
PAGES 49-53
DATE PUBLISHED-----70
SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES, BIOLOGICAL AND MEDICAL
SCIENCES
TOPIC TAGS--PSYCHOPHYSIOLOGY, CYBERNETICS, BIONICS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3003/0970
STEP NO--UR/0248/70/025/001/0049/0053
CIRC ACCESSION NO--AP0130022
UNCLASSIFIED